RED - Product Safety Alert - Fire Hazard - Dynasen Power Supplies to be Removed from Service

* survey at bottom

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Lesson ID: LL-2012-LLNL-14 *(Source: User Submitted)*

Originating Organization or Contracting Company: Lawrence Livermore National Security, LLC

Date: 11/12/2012 **Contact:** Doug Coffland (LLNL AHJ: coffland1@llnl.gov, 925-423-7867)

Classifier: None. **Reviewer:** Constance E. DeGrange

Statement: The LLNL Authority having Jurisdiction (AHJ) revoked all approvals for use of Dynasen Model CK2-50 power supplies at LLNL until this concern is resolved.

Discussion: A Dynasen Piezoresistive Pulse Power Supply, model CK2-50/0.050-300, experienced equipment failure during use in an experiment at LLNL. This failure created smoke and caused damage to the power supply's electrical components. The supplemental protection designed into the power supply did not perform as expected.

Analysis: Apparent Cause: The power input fuse (0.5A) was connected to the neutral line, not the 120VAC (Hot-L1) line. A short circuit on the output load or within the power supply apparently created a direct path to ground. This short circuit may have caused the over-heating of electrical wires and components. Ten additional units were immediately removed from operation and passive continuity checks indicated that 6 of the 10 units also had incorrect fuse wiring. A requested AHJ evaluation of two units also concluded that inadequate wire sizing, grounding, and other problems existed as well.

Result: Electronic conductors and components became charred, melted, and damaged (Figure 3). Equipment failure occurred and a pause in the experiment was immediately enforced. The fact that the 0.5A fuse did not trip and grounding problems exist creates a safety concern that elevated this pause of work to a stop work. The LLNL AHJ has revoked all approvals for use of Dynasen Model CK2-50 power supplies at LLNL until this concern is resolved. All similar Dynasen models are now being investigated for grounding, polarity/fusing problems, and other AHJ deficiencies. Communications with appropriate LLNL parties and equipment owners are taking place, and a complete AHJ inspection report will be generated to establish consistency in the proposed corrective actions that are applied.

Actions: At Lawrence Livermore National Laboratory:
1. Required action: Immediately remove from service all Dynasen Piezoresistive Pulse Power Supplies, model CK2-50/0.050-300, in use at LLNL.
2. Provide the LLNL AHJ, Doug Coffland (423-7867, coffland1@llnl.gov) the unit's location, serial number, and custodian's/point of contact's name and contact information and await instructions providing the path forward on issue resolution.
3. Do not open this unit until appropriate work authorizations are in place. There are two 650uF capacitors in the chassis that have the potential of storing > 10 Joules. This hazard requires controls and additional steps that must be taken before performing work on the units. These steps would include, but may not be limited to, an authorized IWS and an approved procedure.

Savings: N/A

Keywords: DYNASEN, FIRE HAZARD, PIEZORESISTIVE, POWER SUPPLY, SHORT CIRCUIT

Hazard(s): Electrical / NEC

ISM Code(s): Feedback and Improvement

Work Function(s): Occupational Safety & Health - General

References: Dynasen, fire hazard, piezoresistive, power supply, short circuit

Priority Descriptor: Red / Urgent

Attachments:
LL-14 PSA-Fire Hazard-Dynasen Power Supply (issued 121109).pdf

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